

# Uganda

## Integrated Pest Management Innovation Lab country profile



Map courtesy CIA World Fact book

Population: 36 M  
GDP per capita: \$1,500  
Feed the Future country? Yes  
Involvement in this country since: 2006

### Challenges:

- Severe losses due to insect pests and diseases
- Excessive use and reliance upon chemical pesticides
- Soil borne pathogens: bacterial wilt
- Invasive pests: Twig borer on coffee; *Tuta absoluta*
- Upsurge in occurrence of plant viruses

### Related project name: Regional IPM Project in East Africa

**Project overview:** IPM Innovation Lab work in Uganda focuses on improving the productivity of high value horticultural crops and reducing chemical pesticide-related environmental pollution by adoption IPM technologies. In Uganda, IPM IL activities focused on coffee, tomato and passion fruit.

**Tomato:** research was aimed at developing technologies to reduce the excessive use of chemical pesticides. The major constraints were late blight, bacterial wilt, viruses, bollworm, leaf miners, aphids and white flies. The technologies that have been developed and disseminated to farmers include a bacteria wilt resistant tomato variety MT56, mulching, staking, grafting and a minimum spray schedule of 3-4 pesticide sprays a season. Use of MT56 and mulching led to a 21% reduction in production costs and could lead to an internal rate of return of up to 250% if adopted.

**Arabica coffee:** research established that the key pests to production in the Mt. Elgon region were coffee root mealybugs and white stem borer. Best management technologies developed were pruning, stem smoothening, and soil fertility enhancement, which were directly disseminated to 126 (71M: 55F) farmers through farmers' field schools (FFS). Impact results indicate that farmers who participated in the training received 46.5% more yield than untrained farmers. A multiplier effect from the FFS was that it led to the established 5 new IPM farmer groups in neighbouring districts.

**Robusta coffee:** focus was on managing the black twig borer (*Xylosandrus compactus*) epidemic. A community approach using phytosanitation to prevent further spread was used through 2 FFS in 2 districts. A total of 72 households were reached (53M: 19F). Results indicated that to be effective women would need to be more engaged in the implementation of phytosanitation practices. Suggested changes include more gender sensitization for men and women as well as specific gender and leadership training for women farmers as part of the IPM farmer field schools' curriculum. The research work also developed ecologically focused management techniques: promotion of predatory ants, locally designed odor based traps, and use of bio-fungicides.

**Passion fruit:** a priority crop for more than 12,000 small-scale farmers in Uganda with key constraints being virus diseases and collar rot that can reduce yields by up to 100%. A study of 180 farmers (138 male: 42 female) showed that more than 80% acknowledged virus diseases as the most significant constraint to production. Formerly, the causal agent for virus diseases was not known. A new virus species was identified by

the IPM IL team along with diagnostic tools that were disseminated to 451 extension agents (355M: 116F) to improve detection and support clean seed certification. Field research recommended management practices include weeding, mulching, and bio-pesticides for use in an integrated strategy that increased yield by 16 fold. KPF4, a promising collar rot-resistant variety received through Kenyan IPM IL collaborators has demonstrated grafting compatibility with local cultivars and has led to increased vigor and yield.

### **Accomplishments' summary:**

1. Impact results show that farmers that participated in the arabica coffee IPM training received an average of 46.5% more yield on their farms than those that did not.
2. Use of tomato variety MT56 can decrease production cost by 21% with a Benefit: Cost ratio of 770.
3. A total of 451 (355M: 116F) extension agents were trained at national and institutional levels to improve detection and support detection, and support clean seed certification.
4. Suppression of weeds through mulching using straw or clean weeding in passion fruit production gave an up to 16 fold increase in yield.
5. Thirteen (13) MSc and 10 BSc students (16M: 7F) have been trained.



IPM scientists demonstrate how to test for bacterial wilt (left), while farmers inspect coffee plants in Uganda (right).

### **Relevant websites**

<http://www.oired.vt.edu/ipmcrsp/our-work/projects/east-africa/>

### **Local Implementers**

Makerere University, National Agricultural Crops Resources Research Institute, National Coffee Resources Research Institute

### **Regions/provinces**

Kirimagondo, Kamila, Wakiso, Mubuku, Bugusege Mt. Elgon, Mukono, Ntenjeru, Nakaseke, Nakanyonyi

### **Contact Information**

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